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| 10/549,603      | 08/21/2006  | Brian E. Jones       | GC797-2-US          | 6075             |

7590 08/23/2007  
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| EXAMINER |
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CHOWDHURY, IQBAL HOSSAIN

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1652

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08/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/549,603

**Applicant(s)**

JONES ET AL.

**Examiner**

Iqbal H. Chowdhury, Ph.D.

**Art Unit**

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-14, 17-20, 22-24 and 30-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15, 16, 21, and 25-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1652

### **DETAILED ACTION**

This application is a 371 of PCT/US04/13257.

Claims 1-34 are currently pending.

The preliminary amendment filed on 09/20/2005 is acknowledged.

Applicant's election with traverse of Group III, Claims 15-16, 21, 25-28, and 29, drawn to an isolated polypeptide mnhkcel cellulase, detergent composition and feed additive in the response filed on 5/25/2007 is acknowledged.

The traversal is on the ground(s) that there would be no burden of search for the coexamination of all the groups or Groups I and III simultaneously without serious burden. This is not persuasive because as described in the previous office action, the products and process claims are independent and distinct although they have overlapping concepts between the groups and while the search necessary for examination of all the groups overlaps it is not coextensive, searching all the groups would require searching of commercial, Patent, pending databases, as well as non-patent literatures, which would impose a serious search burden to the Examiner. Regarding Group I and III, Examiner in his previous Office action showed that Group I-VIII lack unity of invention because Group I, which is drawn to an isolated polynucleotide, host cell and a process for producing polypeptide, and Group III, which is drawn to an isolated polypeptide, are each unrelated and chemically distinct entities. The only shared special technical feature of these groups is that they relate to polynucleotide encoding polypeptide or polypeptide of SEQ ID NO: 3, wherein, this shared technical feature is not a "special technical feature" as defined by PCT Rule 13.2 as it does not define a contribution over the art (US Patent 6268197 teaches a protein,

Art Unit: 1652

having cellulase activity and a detergent composition comprising said polypeptide, which is 90% identical to SEQ ID NO: 3 of instant application). Thus, a polypeptide cellulase does not make contribution over the prior art and lacks unity of invention. Therefore, each group of Group I and III represents an independent and distinct invention.

Applicants request for rejoinder is noted. However, current claims of elected Group III are not allowable at this time. When Group III would be allowable; rejoinder request would be evaluated at that time based on only the product recited in Group III.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-14, 17-20, 22-24, 30-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims 15-16, 21, 25-28, and 29 are under consideration and will be examined herein.

#### ***Priority***

Acknowledgement is made of applicants claim for priority of provisional application 60/467,315 filed on 4/30/2003.

#### ***Information Disclosure Statement***

There is no information disclosure statement (IDS) with this application.

#### ***Drawings***

There is no drawing with this application.

Art Unit: 1652

### ***Claim Objections***

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). The last claim number should be 34 not 33, because the previous claim of the last claim is 33. Appropriate correction is required.

Claims 15, and 16 are objected to in the recitation mHKCel, as abbreviations should not be used without at least once fully-setting forth what they are used for. Appropriate correction is required.

Claim 21 is objected to as depending from non-elected claims. Appropriate correction is required.

Claim 16 is objected to in the recitation "The substantially purified mHKCel cellulase", which should be "A substantially purified mHKCel cellulase" because this claim is an independent claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 15-16, 21, 25-28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite and vague for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 15-16, and 25 are indefinite and vague in

Art Unit: 1652

the recitation of the “substantially purified” as it is unclear how purified of a polypeptide must be to be encompassed by the phrase “substantially purified”. Accordingly, claims 21, 26-28 and 29 are also rejected as dependent on claims 15 and 25.

Claims 15-16, 21, 25-28 and 29 are indefinite in the recitation of “biologically active fragment” as it is unclear what the scope of activities that is encompassed by this term includes. On page 12 of the specification, applicants define the term “biologically active” as “having activity associated with a particular protein”. As the protein can be interpreted as mutants, variants or fragments of said protein. However, it is not clear to the Examiner as to what type of “activities” is encompassed by said fragment. Therefore, the scope of the phrase “biologically active fragment” is vague and indefinite. Accordingly, claims 21, 26-28 and 29 are also rejected as dependent on claims 15 and 25.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite and vague for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 is indefinite in the recitation of the “a derivative” in the context of polypeptide having cellulase activity, which is confusing. A derivative can be a fragment without any activity. It is not clear what does this “derivative” encompass?

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 16 is directed to a purified mHKC<sub>el</sub> cellulase polypeptide obtained from a *Bacillus*, having cellulase activity.

The Court of Appeals for the Federal Circuit has recently held that a “written description of an invention involving a chemical genus, like a description of a chemical species, ‘requires a precise definition, such as by structure, formula [or] chemical name,’ of the claimed subject matter sufficient to distinguish it from other materials.” *University of California v. Eli Lilly and Co.*, 1997 U.S. App. LEXIS 18221, at \*23, quoting *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). To fully describe a genus of genetic material, which is a chemical compound, applicants must (1) fully describe at least one species of the claimed genus sufficient to represent said genus whereby a skilled artisan, in view of the prior art, could predict the structure of other species encompassed by the claimed genus and (2) identify the common characteristics of the claimed molecules, e.g., structure, physical and/or chemical characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or a combination of these (paraphrased from *Enzo Biochemical*).

*University of Rochester v. G.D. Searle & Co.* (69 USPQ2d 1886 (2004)) specifically points to the applicability of both *Lily* and *Enzo Biochemical* to methods of using products, wherein said products lack adequate written description. While in *University of Rochester v. G.D. Searle & Co.* the methods were held to lack written description because not a single

Art Unit: 1652

example of the product used in the claimed methods was described, the same analysis applies wherein the product, used in the claimed methods, must have adequate written description (see *Enzo* paraphrase above).

Thus, Claim 16 is directed to any cellulase polypeptide obtained from a *Bacillus* genus having cellulase activity, wherein said protein structures are not fully described in the specification. No information, beyond the characterization of a polypeptide having cellulase activity, which would indicate that applicants had possession of the claimed genus of any cellulase polypeptide from *Bacillus* including mutants and variants having cellulase enzyme activity. The specification does not contain any disclosure of the structure of all the mutants or variants or derivatives of any cellulase polypeptide of the claim. The genus of polypeptides is a large variable genus including mutants, variants and derivatives, which can have wide variety of structures. Therefore, many structurally unrelated polypeptides are encompassed within the scope of the claim. The specification discloses the structure of only a single representative species of the claimed genus (SEQ ID NO: 3), which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at [www.uspto.gov](http://www.uspto.gov).

Claims 25, 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably



Art Unit: 1652

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 25 is directed to a detergent composition comprising a genus of a polypeptide having 85% to 100% identity to SEQ ID NO: 3.

The specification does not contain any disclosure of the function of all protein sequences that are 85-95% identical to SEQ ID NO: 3. The genus of polypeptide is a large variable genus with the potentiality of encoding many different proteins. Therefore, many functionally unrelated protein fragments are encompassed within the scope of these claims, including peptide sequences. The specification discloses only a single species of the claimed genus (i.e. SEQ ID NO: 3), which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at [www.uspto.gov](http://www.uspto.gov).

Claims 15, 16, 21, and 25-29 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polypeptide or detergent composition or a feed additive comprising the polypeptide of SEQ ID NO: 3 from *Bacillus agaradhaerens*, does not reasonably provide enablement for any polypeptide from any *Bacillus* species or any derivative or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3. The specification does

Art Unit: 1652

not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, **to make and use** the claimed invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731,737, 8 USPQ2nd 1400 (Fed. Cir. 1988)) as follows:

(1) quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence and absence of working examples, (4) the nature of the invention, (5) the state of prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. The factors, which have, lead the Examiner to conclude that the specification fails to teach how to make and/or use the claimed invention without undue experimentation, are addressed below:

**The breath of the claims:**

Claims 15, 16, 21 (depends on claim 17, which depend on claim 8, which depends on claim 1), and are so broad as to encompass any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3.

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of proteins involved in making detergent composition or feed additive, including mutants, variants and derivatives broadly encompassed by the claims. However, in this case the disclosure is limited to the nucleotide and encoded amino acid sequence of only one cellulase protein i.e. SEQ ID NO: 3 used to make the detergent composition and feed additive.

**The amount of direction or guidance presented and the existence of working examples:**

The specification discloses a polypeptide having cellulase activity of SEQ ID NO: 3 or a detergent composition or feed additive comprising said polypeptide of SEQ ID NO: 3 having cellulase activity. However, the specification fails to provide any clue as to the structural elements required in any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3, or which are the structural elements in said proteins to be used in making the claimed detergent composition or feed additive known in the art that are essential for successfully practice in making claimed detergent composition or feed additive. No correlation between structure and function has been presented.

The specification does not support the broad scope of the claims which encompass any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 because the specification does **not** establish: (A) regions of the protein structure which may be modified without affecting cellulase activity and; (B) the general tolerance of any cellulase polypeptide to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any cellulase polypeptide amino acid residues with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Art Unit: 1652

Applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of a detergent composition or feed additive comprising any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir, 1988).

**The state of prior art, the relative skill of those in the art, and the predictability or unpredictability of the art:**

The amino acid sequence of a polypeptide determines its structural and functional properties. While the specification discloses a single cellulase polypeptide of SEQ ID NO: 3 from *Bacillus agaradhaerens*, neither the specification nor the art provide a correlation between structure and function such that one of skill in the art can envision the structure of any polypeptide from any *Bacillus* species or any derivative, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3.

Art Unit: 1652

identity to SEQ ID NO: 3 or a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3. The art clearly teaches that modification of a protein's amino acid sequence to obtain the desired activity without any guidance/knowledge as to which amino acids in a protein are tolerant of modification and which ones are conserved is highly unpredictable. At the time of the invention there was a high level of unpredictability associated with altering a polypeptide sequence with an expectation that the polypeptide will maintain the desired activity. For example, Branden et al. (1991) teach that (1) protein engineers are frequently surprised by the range of effects caused by single mutations that they hoped would change only one specific and simple property in enzymes, (2) the often surprising results obtained by experiments where single mutations are made reveal how little is known about the rules of protein stability, and (3) the difficulties in designing de novo stable proteins with specific functions. The teachings of Branden et al. are further supported by the teachings of Witkowski et al. (1999) and Seffernick et al. (2001), where it is shown that even small amino acid changes result in enzymatic activity changes.

**The quantity of experimentation required practicing the claimed invention based on the teachings of the specification:**

While methods of generating or isolating variants of a polypeptide were well known in the art at the time of invention, it is not routine in the art to screen by trial and error process for (1) all proteins which is 85-95% identical to SEQ ID NO: 3, (2) an essentially infinite number of mutations of any cellulase protein sequence. The amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art

Art Unit: 1652

would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple point mutations or substitutions. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification.

**Conclusion:**

Therefore, taking into consideration of the extremely broad scope of the claims, the lack of guidance, the amount of information provided, the lack of knowledge about a correlation between structure and function, and the high degree of unpredictability of the prior art in regard to structural changes and their effect on function, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to practice the claimed invention. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15, 16, 21, and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Schulein et al. (US Patent 6,268,197 B1, publication 7/31/2001). Instant claims are drawn to any polypeptide from any *Bacillus* species or any derivative thereof, or any polypeptide having 85-95% identity to SEQ ID NO: 3 or a detergent composition comprising any polypeptide having

Art Unit: 1652

85-95% identity to SEQ ID NO: 3.

Schulein et al. teach a polypeptide (SEQ ID NO: 4) having xyloglucanases activity, a cellulase from *Bacillus agaradhaerens* having 90.1% identical to SEQ ID NO: 3 of the instant application (see sequence alignment). Schulein et al. also teach mutants and derivatives of said polypeptide. Schulein et al. further teach a detergent composition comprising said polypeptide including for using in laundry and dishwashing operations. Therefore, Schulein et al. anticipate claims 15, 16, 21, and 25-28 of the instant application.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schulein et al.

Art Unit: 1652

(US Patent 6,268,197 B1, publication 7/31/2001) as applied to claim 15, 16, 21 and 25-28 above, and further in view of Bedford et al. (US Patent 6,562,340, publication 5/13/2003, which is a continuation of US application 08/169,948 filed on Dec. 17, 1993). Instant claims are drawn to a feed additive comprising any polypeptide having 85-95% identity to SEQ ID NO: 3 having cellulase activity.

Schulein et al. teach a polypeptide (SEQ ID NO: 4) having xyloglucanases activity, a cellulase from *Bacillus agaradhaerens* having 90.1% identical to SEQ ID NO: 3 of the instant application (see sequence alignment). Schulein et al. also teach mutants and derivatives of said polypeptide. Schulein et al. further teach a detergent composition comprising said polypeptide including for using in laundry and dishwashing operations. Schulein et al. do not teach using said polypeptide for making feed additive.

Bedford et al. teach the use of endoglucanases, a cellulase in a composition as a feed additive.

By combining the teachings of Schulein et al. and Bedford et al., it would have been obvious to one of ordinary skill in the art at the time of the invention was made to make a composition for feed additive as taught by the method of Bedford et al. by using the polypeptide of Schulein et al.

One of ordinary skill in the art would have been motivated to use said polypeptide of Schulein et al. which is highly stable at adverse situation i.e. alkaline solution for using in feed additive in order to improving the feed conversion ratio and/or increasing the digestibility of a cereal-based feed in which it is included.



Art Unit: 1652

One of ordinary skill in the art would have a reasonable expectation of success because Bedford et al. teach a successful method of making a feed additive comprising a cellulase for use in food industry.

Therefore, claim 29 would have been *prima facie* obvious to use of ordinary skill in the art.

### **Conclusion**

#### **Status of the claims:**

Claims 1-34 are pending.

Claims 1-14, 17-20, 22-24, and 30-34 are withdrawn.

Claims 15, 16, 21, and 25-29 are rejected.


No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Iqbal Chowdhury whose telephone number is 571-272-8137. The examiner can normally be reached on 9:00-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 703-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TECHNOLOGY CENTER 1652

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